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Kim Blum  
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Kim Blum  
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Kürschner et al.	)	Examiner:	Adepeju Omolola Pearce
Application No.:	10/519,156	)	Group Art Unit:	1761
Filed:	December 17, 2004	)	Confirmation No.:	6599
Docket No.:	3075-005	)	Customer No.:	33432

For: EXTRACT OBTAINED FROM BY-PRODUCTS OF HARD-SHELLED FRUIT AND PULSE  
PROCESSING, METHOD FOR ITS PRODUCTION AND USE

**DECLARATION UNDER 37 C.F.R. §1.131**

I, Christian Christiansen, do declare and state as follows:

- 1.) That I am one of the named inventors for the above-identified patent application.
- 2.) That the inventors, including myself, conceived and began reducing to practice in Germany the invention claimed in the above-identified patent application prior to January 18, 2000, which is the priority date of WO 01/53418. The attached description and processing information (which has been redacted to remove non-relevant confidential subject matter and to conceal specific dates) was obtained prior to January 18, 2000, except for the section entitled "Supplement," which was prepared after January 18, 2000. The attached information is a report (Attachment A), which has been translated into English from the original German document (Attachment B) for the benefit of the Examiner, and shows the development of trials and actual trials used to develop a coloring extract from hazelnut kernel skins. In the trial, the hazelnut kernel skins were obtained from a supplier, who already roasted the hazelnut kernel skins prior to supplying the hazelnut kernel skins to us for purposes of these trials.

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U.S. Patent Application No. 10/519,156  
Declaration Under 37 C.F.R. §1.131

As the report shows, a coloring extract was obtained from hazelnut kernel skins, which is a roasted by-product of a hard-shell fruit and pulse processing. Further, the report shows the use of multiple extractions and the use of the extract for purposes of coloring.

Thus, the attached information, which relates to the aforementioned conception and actual reduction to practice, corresponds to the invention broadly disclosed and claimed in the above-identified patent application. All of this attached information was obtained prior to January 18, 2000.

Accordingly, based on this information, the subject matter of the above-identified application as claimed was conceived and reduced to practice prior to January 18, 2000.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

  
\_\_\_\_\_  
Christian Christiansen

29-6-2006  
Date

**Interim Report 3**  
**Project: Natural Nut Extracts**  
**Preliminary final report on hazelnut kernel skins**

**Time frame:** **REDACTED**

**Plan:** Manufacture of a "Nat. Hazelnut Astringent" as well as a colouring extract from hazelnut kernel skins.

**Trials:** In preliminary trials, it was determined that hazelnut kernel skins are not suitable for producing a flavouring, because no typical nut flavour can be isolated. Such a flavouring (flavour extract from steamed skins) would be used as a supplementary component, at most.

An extract manufactured with the skins is very strongly coloured or strongly astringent.

For a colouring extract, treatment with caustic soda solution (according to the procedure with tea) is advisable, in order to rule out undesirable precipitation by polyphenols. At the same time, this allows a more intensive colour to be achieved. The colouring department sees the application area for this product in colouring chips; there is already a concrete inquiry for this.

In order to use the astringent properties of the skins, the extract treatment with caustic soda solution may not be carried out, because this treatment breaks down the substances contributing to the astringency. But because there can then be precipitations, it is advisable to keep the polyphenols in solution by means of glycerine or to manufacture a spray-dried extract. The application area for such a product would be in the cola base material area, for example.

Manufacture of a raw extract is prerequisite for both types of extract. Preliminary trials have shown that the best results are achieved with multiple-fraction extraction with water. Given appropriate quantities, rotary extraction would consequently be advisable for this. For smaller quantities, the DIG-MAZ found in the planning or the Schrader system can be used, but here the number of fractions is then correspondingly smaller and the concentration must be stronger.

**Result:** It was possible to produce a colouring extract, spray-dried with and without maltodextrin. The dosages for the extract without maltodextrin are 0.6 - 0.8 : 1000, and 1.2 - 1.5 : 1000 for the extract with maltodextrin. In application, astringent extracts are 1.5 - 2.0 : 1000 for the glycerine extract, 0.6 - 0.8 : 1000 for the spray-dried extract without maltodextrin and 1.2 - 1.5 : 1000 for the spray-dried extract with maltodextrin.

Corresponding samples were sent to Pratteln, Heidelberg and America for assessment. Samples were likewise given to the internal flavouring creation group, spirits department and colouring department.

The raw extract for these samples was produced in two fractions in the pilot plant on the small distillation still with extraction head and then spray-dried or

evaporated.

**Production method**

**Production scale:** Attachment: Flow diagram

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The prices have not yet been passed on, however, because they apply only in the event of production by means of rotary extraction. Furthermore, the raw material costs were determined on the basis of the pilot plant trials (2-fraction raw extract) and could still be subject to change in the event of production using a rotary extractor, because this would achieve a 9-fraction extract. Because it is not currently possible to make any statements on possible production quantities, the use of the rotary extractor is also still uncertain.

**Raw material availability:**

REDACTED

**Further plans:**

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Attachment: Flow diagram

**Supplement:** It has been shown that the spray-dried colouring extract could be of interest for replacing the sandalwood extract. Further trials should run in the colouring department.

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K. Kürschner

### Zwischenbericht 3

## Projekt: Natürliche Nußextrakte

### Vorläufiger Endbericht zu Haselnußkernhäutchen

- Zeitraum:** REDACTED
- Vorhaben:** Herstellung eines „Nat. Haselnuß – Adstringenten“ sowie eines Farbextraktes aus Haselnußkernhäutchen
- Versuche:**  
In Vorversuchen wurde festgestellt, daß sich Haselnußkernhäutchen zur Aromagewinnung nicht eignen, da kein typisches Nußaroma isoliert werden kann. Allenfalls als Beikomponente wäre ein solches Aroma (Aromaextrakt aus abgedampften Häutchen) einzusetzen.  
Ein mit den Häutchen hergestellter Extrakt ist sehr farbreich oder stark adstringierend.  
Für einen Farbextrakt empfiehlt sich eine Behandlung mit Natronlauge (in Anlehnung an Verfahrensweise bei Tee), um unerwünschte Ausfällungen durch Polyphenole auszuschließen. Gleichzeitig kann hierdurch eine intensivere Farbe erreicht werden. Das Einsatzgebiet für dieses Produkt sieht die Farbabteilung in der Färbung von Chips, eine konkrete Anfrage hierzu liegt vor.  
Um adstringierende Eigenschaften der Häutchen zu nutzen, darf die Behandlung des Extraktes mit Natronlauge nicht erfolgen, da hierdurch die zur Adstringität beitragenden Stoffe abgebaut werden. Da es dann jedoch zu Ausfällungen kommen kann, empfiehlt es sich, die Polyphenole durch Glycerin in Lösung zu halten, oder einen sprühgetrockneten Extrakt herzustellen. Das Einsatzgebiet für ein solches Produkt liegt z.B. im Cola-Grundstoff-Bereich.  
  
Für beide Arten von Extrakt ist die Herstellung eines Rohextraktes Voraussetzung. Vorversuche haben gezeigt, daß durch eine mehrstufige Extraktion mit Wasser die besten Ergebnisse erzielt werden. Bei entsprechenden Mengen wäre also hierfür die Karusselleextraktion ratsam. Für kleinere Mengen sind die in der Planung befindliche DIG-MAZ oder die Schrader-Anlage einsetzbar, jedoch ist hier dann die Stufenzahl entsprechend geringer und es muß stärker konzentriert werden.
- Ergebnis:**  
Es konnte ein Farbextrakt, sprühgetrocknet mit und ohne Maltodextrin hergestellt werden. Die Dosagen bei dem Extrakt ohne Maltodextrin liegen bei 0,6-0,8 : 1000, bei dem Extrakt mit Maltodextrin bei 1,2-1,5 : 1000.  
Die adstringierenden Extrakte liegen in der Anwendung bei 1,5-2,0 : 1000 für den Glycerinextrakt, 0,6-0,8 : 1000 für den sprühgetrockneten Extrakt ohne Maltodextrin sowie 1,2-1,5 : 1000 für den sprühgetrockneten Extrakt mit Maltodextrin.  
  
Entsprechende Muster wurden nach Pratteln, Heidelberg, Amerika zur Beurteilung geschickt. Ebenfalls sind Muster in unserem Hause an die Aromacreation, die Spirituosenabteilung sowie die Farbabteilung gegeben worden.  
Der Rohextrakt für diese Muster wurde im Technikum auf der kleinen Destillationsblase mit Extraktionsaufsatz 2-stufig hergestellt und anschließend sprühgetrocknet oder eingedampft.

**Herstellungsweise**  
**Produktionsmaßstab:** Anlage Fließschema

Preise:

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Die Preise wurden jedoch noch nicht weitergeleitet, da sie nur im Falle der Herstellung mittels Karussellextraktion gültig sind. Außerdem wurden die Rohstoffkosten auf der Basis der Technikumsversuche (2-stufiger Rohextrakt) ermittelt und könnten sich bei Herstellung mittels Karussellextrakteur noch ändern, da hiermit ein 9-stufiger Extrakt erreicht wird. Da gegenwärtig noch keine Aussage über eventuelle Produktionsmengen gemacht werden kann, ist auch der Einsatz des Karussellextrakteurs noch fraglich.

Rohstoffverfügbarkeit:

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Weitere Vorhaben:

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Kathleen Kürschner

Anlage: Fließschema

Ergänzung: Es hat sich gezeigt, daß der sprühgetrocknete Farbextrakt interessant für den Austausch des Sandelholzextraktes sein könnte. Weitere Versuche sollen in der Abteilung Farben laufen.

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K. Kürschner



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